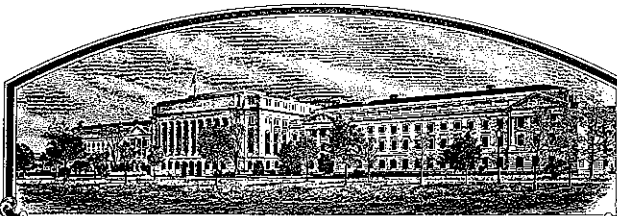


No.

9600370



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN MAKING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT, (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'9333'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of March, in the year of our Lord two thousand.

Attest:

Samuel I. Johnson

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

Samuel I. Johnson

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER		3. VARIETY NAME	
Pioneer Hi-Bred International, Inc.				9333	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)		5. TELEPHONE (include area code)		FOR OFFICIAL USE ONLY PVPO NUMBER 9600370	
700 Capital Square 400 Locust Street Des Moines, Iowa 50309		515/270-3582			
		6. FAX (include area code)		FILING DATE	
		515/253-2288		Aug. 30, 1996	
7. GENUS AND SPECIES NAME		8. FAMILY NAME (Botanical)		FILING AND EXAMINATION FEE:	
Glycine max L.		Luguminosae		\$ 2450.00	
9. CROP KIND NAME (Common name)				DATE	
Soybean				Aug. 23, 1996	
10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name)				CERTIFICATION FEE:	
Corporation				300.00	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION		DATE	
Iowa		May 6, 1926		Oct. 18, 99	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS				(include area code)	
John Grace 7300 NW 62nd Ave. P.O. Box 1004 Johnston, Iowa 50131-1004		Debra Blair (Copy) 700 Capital Square 400 Locust St. Des Moines, Iowa 50309		515/270-3582	
				15. FAX (include area code)	
				515/253-2288	
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)					
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Applicant's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,600 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2450), made payable to "Treasurer of the United States" (Mail to PVPO)					
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED (See Section 83(a) of the Plant Variety Protection Act)?					
<input type="checkbox"/> YES If "yes," answer items 18 and 19 below <input checked="" type="checkbox"/> NO If "no," go to item (20)					
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?			19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?		
<input type="checkbox"/> YES <input type="checkbox"/> NO			<input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED		
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?					
<input checked="" type="checkbox"/> YES (If "yes," give names of countries and dates) <input type="checkbox"/> NO					
U.S. - 1996					
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate					
The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.					
Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT (Owner(s))			SIGNATURE OF APPLICANT (Owner(s))		
					
NAME (Please print or type)			NAME (Please print or type)		
D. John Grace III					
CAPACITY OR TITLE		DATE	CAPACITY OR TITLE		DATE
Soybean Research Coordinator		8/20/96			

**Exhibit A. Origin and Breeding History of the Variety****Soybean Variety 9333**

Variety 9333 evolved from a 1993 cross of (9281/9281/9273/9273/A5403\*).

It is an F<sub>2</sub>-derived variety. The F<sub>3</sub> progeny row of 9333 was grown in the winter of 1993-94 in Salinas, Puerto Rico. Subsequently, 9333 has undergone 2 years of testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation, with no evidence of variants. On the basis of yield performance, Phytophthora root rot resistance and enhanced resistance to glyphosate, 9333 was released for sale.

The purification block was grown and 106 sublines were bulked for increase. Twenty-eight acres of 9333 (breeders seed) were grown in the summer of 1995. Three hundred thirty acres of parent seedstock (foundation seed equivalent) were grown in the winter of 1995-96 in Chile and an estimated 11,541 bushels will be harvested.

\*A5403 transformed with the Roundup Ready<sup>™</sup> gene.

\*Roundup Ready<sup>™</sup> gene, Trademark, Monsanto Company.

**Exhibit B. Statement of Distinctness****Soybean Variety 9333**

Variety 9333 which contains the Roundup Ready<sup>(TM)</sup> gene is different from other soybean varieties in that most other soybean varieties do not contain this gene.

Variety 9333 is similar to 9344 in that they both have tawny pubescence, purple flowers and yellow seeds with black hila color. However, 9333 has a dark purple hypocotyl color and 9344 has a light purple hypocotyl color. Variety 9333 is also significantly shorter (Table 1).

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SEED DIVISION - PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) <b>Pioneer Hi-Bred International, Inc.</b>	TEMPORARY DESIGNATION	VARIETY NAME <b>9333</b>
ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) <b>7300 N.W. 62nd Ave., P.O. Box 1004 Johnston, IA 50131-1004</b>		FOR OFFICIAL USE ONLY PVPO NUMBER <b>9600370</b>

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero on the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:








1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)

3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)

4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify)

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other (Specify)

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1 a)

2 = Type B (SP1 b)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify)

Variety Name 9333

## 11. LEAFLET SIZE:

1 = Small ('Amsoy 71'; 'A5312')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

3 = Large ('Crawford'; 'Tracy')

## 12. LEAF COLOR:

1 = Light Green ('Weber'; 'York')

2 = Medium Green ('Corsoy 79'; 'Braxton')

3 = Dark Green ('Gnome'; 'Tracy')

## ★ 13. FLOWER COLOR:

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

1 = Slender ('Essex'; 'Amsoy 71')

2 = Intermediate ('Amcor'; 'Braxton')

3 = Bushy ('Gnome'; 'Govan')

## ★ 17. PLANT HABIT:

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

1 = 000

2 = 00

3 = 0

4 = I

5 = II

6 = III

7 = IV

8 = V

9 = VI

10 = VII

11 = VIII

12 = IX

13 = X

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★ Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)★ Bacterial Blight (*Pseudomonas glycinea*)★ Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★ Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojae*)★ 

Race 1

Race 2

Race 3

Race 4

Race 5

Other (Specify)

Target Spot (*Corynespora cassiicola*)Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)Powdery Mildew (*Microspheera diffusa*)★ Brown Stem Rot (*Cephalosporium gregatum*)Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

## 19. DISEASES REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

## FUNGAL DISEASES: (Continued)

- ★  Pod and Stem Blight (*Diaporthe phaseolorum* var; *sojae*)
- Purple Seed Stain (*Cercospora kikuchii*)
- Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★  Race 1  Race 2  Race 3  Race 4  Race 5  Race 6  Race 7
- Race 8  Race 9  Other (Specify)

## VIRAL DISEASES:

- Bud Blight (Tobacco Ringspot Virus)
- Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★  Cowpea Mosaic (Cowpea Chlorotic Virus)
- Pod Mottle (Bean Pod Mottle Virus)
- ★  Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★  Race 1  Race 2  Race 3  Race 4  Other (Specify) 14
- Lance Nematode (*Hoplolaimus Colombus*)
- ★  Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★  Northern Root Knot Nematode (*Meloidogyne Hapla*)
- Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- Reniform Nematode (*Rotylenchulus reniformis*)
- OTHER DISEASE NOT ON FORM (Specify)

## 20. PHYSIOLOGICAL RESPONSES: (ENTER 0 = Not tested, 1 = Susceptible, 2 = Resistant)

- ★  Iron Chlorosis on Calcareous Soil
- Other (Specify)

## 21. INSECT REACTION: (ENTER 0 = Not tested, 1 = Susceptible, 2 = Resistant)

- Mexican Bean Beetle (*Epilachna Varivestis*)
- Potato Leaf Hopper (*Empoasca fabae*)
- Other (Specify)

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9281	Seed Coat Luster	9281
Leaf Shape	9281	Seed Size	9321
Leaf Color	9306	Seed shape	9392
Leaf Size	9281	Seedling Pigmentation	9321

Variety Name 9333

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY : Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEED	NO. SEEDS POD
				CM Width	CM Length	% Protein	% Oil		
Submitted	112.8	1.5	81			39.3	23.3	11.4	3
Name of Similar 9281	108.3	1.0	74			40.2	23.4	13.1	3

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A2 in the USDA soybean germplasm collection. Crop. Sci., 13: 420-421
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1:1-19



**Exhibit D. Additional Description of the Variety****Soybean Variety 9333**

In Exhibit C we have identified variety 9333 as susceptible to bacterial blight, brown spot, pod and stem blight, rhizoctonia root rot, bud blight, yellow mosaic, cowpea mosaic, pod mottle and seed mottle.

This does not mean that variety 9333 is any worse for these problems than other varieties of similar maturity. Rather, we do not consider 9333 to be immune to these problems. Therefore, we have chosen to be conservative and have identified the line as "susceptible".

Variety 9333 is an early-mid group III variety. If group III maturities are divided into tenths, the relative maturity of 9333 is 3.3.

**Pioneer Hi-Bred Int'l Inc.,**  
PVP Application - Exhibit B - Soybean Variety 9333

Table 1. T-test comparison of 9344 versus 9333 for height in 1995 1-year analysis.

YEAR	LOC	REP	9344 (X1)	9333 (X2)	X1-X2	(X1-X2) <sup>2</sup>
--- Height ---						
1995	950	1	28	26	2	4
	901C	1	42	40	2	4
	346A	1	39	36	3	9
	031O	1	28	27	1	1
	005B	1	41	34	7	49
1995	SUM		178	163	15	67
	MEAN		35.6	32.6	3.0 = d	
	n =		5 groups of individuals			

**1995 ANALYSIS**

Ave 9344 35.60 Inches  
Ave 9333 32.60 Inches  
d = (Ave SE diff = S 1.100  
SE diff = 1.049  
t = d/SE di 2.860  
df = 4  
Prob > t = 0.0459 significant at <5% level

Formula for Standard Error Calculations:

$$SE \text{ diff} = \sqrt{\frac{\sum (X1-X2)^2 - (\sum X1-X2)^2 / n}{(n) (n-1)}}$$

1995 Standard Error Calculation:

$$SE \text{ diff}_{95} = \sqrt{\frac{67 - ((15)^2/5)}{(5) (4)}}$$

**Location Summary**

950 Bethany, MO  
901C Johnston, IA  
346A Napoleon, OH  
031O St. Joseph, IL  
005B Griswold, IA

**Method Used in Gathering Data**

- Height measurements were taken on each plot at maturity. One (1) representative measurement was taken per plot. Height was measured from the soil surface to the terminal node.

-Plots were planted using a randomized complete block design. Plots were fifteen feet long by ten foot (four thirty inch rows) wide.

**Exhibit E. Statement of the Basis of Applicant's Ownership****Soybean Variety 9333**

Variety 9333 was originated and developed by U.S. plant breeders from whom, by agreement, Pioneer Hi-Bred International, Inc. has obtained exclusive rights to variety 9333. No rights to variety 9333 are retained by the plant breeder or by any other party.